



PDB Moderated Synthesis of Some 2-Substituted Aryl-5-Phenyl-1,3,4-Oxadiazole/5-Substituted Aryl-2-(Furan-2-yl)-1,3,4-Oxadiazole as Potential Pesticides

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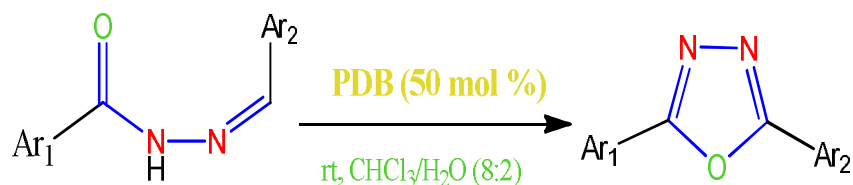
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ABSTRACT

Novel, efficient and operationally improved method has been developed for one pot synthesis of several 2-substituted aryl-5-phenyl-1, 3, 4-oxadiazole / 5-aryl-2-(furan-2-yl)-1, 3, 4-oxadiazole. 1, 3, 4-Oxadiazole derivatives were prepared by stirring N^1 -aroyl- N^2 -arylidene hydrazines/ N^1 -aroyl- N^2 -furylidene hydrazines with PDB in $CHCl_3/H_2O$ (8:2) for 13-15 minute at room temperature. The reaction takes place smoothly and all the synthesized compounds were purified by column chromatography and then characterized by spectral analysis (1H NMR, ^{13}C NMR and Mass). All these compounds were screened for their antibacterial activity against two Gram-positive bacteria viz. *Bacillus subtilis* and *Bacillus pumilus* and three Gram-negative bacteria viz. *Salmonella typhi*, *Escherichia coli* and *Klebsiella pneumonia* antifungal activity against *Aspergillus niger*, *Pyricularia oryzae* and *Aspergillus fumigatus* and herbicidal activity against *Echinochloa oryzicola*, *Echinochloa crus-galli*, *Oryza sativa* and *Glycine max*.

Graphical Abstract:



Synthesis of 2,5 di-substituted 1,3,4-oxadiazole using PDB a mild catalyst.

Keywords: Chloroform; 4-oxadiazoles; PDB; pesticidal activity; Schiff's bases.